

## CLAIMS

### WHAT IS CLAIMED IS:

1. A method for synthesizing an optimized process flow, an activity abstraction hierarchy and an instruction set that represents the minimal work to produce at least one outcome, comprising the steps of:
  - recursively examining conditional execution requirements of each activity associated with a specified outcome;
  - identifying activities which must be completed to arrive at an outcome;
  - identifying the last of said activities;
  - determining if an activity is present in a project work plan while working backward from the identified last activity;
  - adding said activity to said project work plan; if an identified activity is not present; and
  - introducing summary activities by referencing a designated work breakdown structure template, when required, when lowest-level activities are added to the work plan.
2. A method for optimizing a work process flow, comprising a work breakdown structure and instruction for activities, the work process flow representing the minimal work to produce at least one outcome, comprising the steps of:
  - identifying activities necessary to arrive at the desired outcome;
  - identifying requirements for each activity;
  - identifying the last of the activities;
  - determining if an activity is present in the current work project plan by examining the process flow in a reverse direction from the last activity;
  - adding activities to the project work plan if an activity necessary to the outcome is not present;
  - eliminating an activity from the project work plan if an activity is unnecessary to the outcome; and

reexamining the requirements and activities to ensure that only necessary requirements and activities are present leading to the outcome in light of added or eliminated activities.

3. A process for optimizing a work process flow, comprising a work breakdown structure and instruction for activities, the work process flow representing the minimal work to produce at least one outcome, comprising the steps of:

- storing data and algorithms on a non-volatile storage device;
- storing data and algorithms in volatile memory device;
- running algorithms on a computer processor utilizing data and algorithms from non-volatile storage and from volatile memory devices;
- assembling an optimized project work breakdown structure further comprising:
  - viewing available work breakdown structure templates;
  - selecting a work breakdown structure template as the controlling work breakdown structure;
  - selecting at least one outcome for synthesis;
  - synthesizing a new work breakdown structure by adding at least one outcome;
  - viewing the resulting work breakdown structure and work flow;
  - removing a selected outcome from a work breakdown structure;
  - synthesizing a new work breakdown structure by removing at least one outcome;
  - viewing the work breakdown structure after the removal of a specified outcome; and
  - linking each activity in the activity hierarchy represented by a specific work breakdown structure with a corresponding instruction module.

4. A system for optimizing a work process flow, comprising:

- means for storing data and algorithms on a non-volatile storage device;
- means for storing data and algorithms in volatile memory device;
- means for running algorithms on a computer processor utilizing data and algorithms from non-volatile storage and from volatile memory devices;
- means for storing an initial project work breakdown structure and work flow;

means for storing a set of elementary activities

means for identifying elementary activities necessary to arrive at the desired outcome;

means for adding at least one outcome to said initial project work breakdown structure;

means for processing as input said initial project WBS and said outcome;

means for processing as output the elimination of any activity from the process flow if said activity is unnecessary to all chosen and present outcomes;

means for processing as output the insertion of any activity into the process flow if said activity necessary to an outcome is not present; and

means for reexamining requirements and activities to ensure that only necessary requirements and activities are present leading to an outcome, in light of added or eliminated activities.

5. The system as in claim 4 further comprising:

an instructional text associated with each activity.

6. The system as in claim 5 further comprising:

means for viewing outcomes of an existing specific project work plan.

7. A system for optimizing a work process flow, comprising a work breakdown structure and instruction for activities, the work process flow representing the minimal work to produce at least one outcome, comprising:

means for storing data and algorithms on a non-volatile storage device;

means for storing data and algorithms in a volatile memory device;

means for running algorithms on a computer processor utilizing data and algorithms from non-volatile storage and from volatile memory device;

means for storing an initial project work plan;

means for adding at least one outcome added to said project work plan;

means for storing at least one node table, comprising elementary activities together with their entry sequence number, node identification, grouping indicator, processed indicator and removal indicator;

means for processing said table of nodes; and

means for processing as output each activity to add to the process flow if said activity necessary to an outcome is not present.

8. The system as in claim 7 further comprising:

means for removing at least one outcome from said project work plan; and

means for processing for removal from said project work plan any necessary elementary activities required to achieve said outcome removed.

9. A system for synthesizing an optimized process flow, an activity abstraction hierarchy and an instruction set that represents the minimal work to produces at least one outcome, comprising:

means for storing data and algorithms on a non-volatile storage device;

means for storing data and algorithms in volatile memory device;

means for running algorithm on a computer processor utilizing data and algorithms from non-volatile storage and from volatile memory devices;

means for assembling an optimized project work breakdown structure further comprising:

means for viewing available work breakdown structure templates;

means for selecting a work breakdown structure template;

means for selecting at least one outcome for synthesis;

means for synthesizing a new work breakdown structure by adding at least one outcome;

means for viewing the resulting work breakdown structure and work flow;

means for viewing outcomes of an existing specific work breakdown structure;

means for removing a selected outcome from a work breakdown structure;

means for synthesizing a new work breakdown structure by removing at least one outcome;

means for viewing the work breakdown structure after the removal of a specified

outcome; and

means for linking each activity in the activity hierarchy represented by a

specific work breakdown structure with a corresponding instruction module.

1. The first step is to identify the overall goal of the project. This is typically done by the project manager and the steering committee. The goal is then broken down into smaller, more manageable tasks. These tasks are then further broken down into even smaller tasks, creating a hierarchy of tasks. This hierarchy is the work breakdown structure (WBS). The WBS is a key tool for project management, as it allows the project manager to see the overall structure of the project and to identify any potential risks or issues. The WBS is also used to create the project schedule, as it allows the project manager to see the sequence of tasks and to estimate the duration of each task. The WBS is a living document, as it is updated as the project progresses. The WBS is a key tool for project management, as it allows the project manager to see the overall structure of the project and to identify any potential risks or issues. The WBS is also used to create the project schedule, as it allows the project manager to see the sequence of tasks and to estimate the duration of each task. The WBS is a living document, as it is updated as the project progresses.